

WHAT IS CLAIMED IS:

1. A method for limiting a paced heart rate, the method comprising:
 - (a) measuring an ERT interval, the ERT interval spanning detection of a paced ventricular evoked response and detection of a T-wave;
 - (b) calculating a maximum pacing rate based on the ERT interval; and
 - (c) adjusting the paced heart rate based on the maximum pacing rate.
2. The method of claim 1, wherein the adjusting step (c) further comprises limiting the paced heart rate based on the maximum pacing rate.
3. The method of claim 1, wherein the calculating step (b) further comprises:
 - (b1) computing an ERT rate based on the ERT interval, and
 - (b2) selecting the maximum pacing rate as a minimum of an adaptive-rate sensor indicated rate and the ERT rate.
4. The method of claim 3, wherein the selecting step (b2) further comprises utilizing an activity sensor to provide the adaptive-rate sensor indicated rate.
5. The method of claim 3, wherein the selecting step (b2) further comprises utilizing a minute ventilation sensor to provide the adaptive-rate sensor indicated rate.
6. The method of claim 3, wherein the selecting step (b2) further comprises utilizing a QT interval sensor to provide the adaptive-rate sensor indicated rate.
7. The method of claim 3, wherein the selecting step (b2) further comprises utilizing an intrinsic atrial rate to provide the adaptive-rate sensor indicated rate.
8. The method of claim 1, wherein the measuring step (a) further comprises detecting the T-wave by using a peak of the T-wave.

9. The method of claim 1, wherein the measuring step (a) further comprises detecting the T-wave by using an onset of the T-wave.
10. The method of claim 1, wherein the measuring step (a) further comprises detecting the T-wave by using a conclusion of the T-wave.
11. The method of claim 1, wherein the measuring step (a) further comprises averaging at least two adjacent ERT intervals to determine the ERT interval.

12. A pacing rate limiter for limiting a paced heart rate, the pacing rate limiter comprising:

- an ER sensor adapted to detect a paced ventricular evoked response; and
- a T sensor adapted to detect a T-wave;

wherein the pacing rate limiter calculates an ERT rate based on the paced ventricular evoked response and the T-wave.

13. The pacing rate limiter of claim 12, wherein the ER sensor utilizes small coupling capacitor technology.

14. The pacing rate limiter of claim 12, wherein the ER sensor and the T sensor are implemented as a unit.

15. The pacing rate limited of claim 12, wherein detection of the T-wave is conducted using a segment of the T-wave selected from the group consisting of onset of the T-wave, peak of the T-wave, and conclusion of the T-wave.

16. The pacing rate limiter of claim 12, wherein the pacing rate limiter further comprises a port for receiving an adaptive-rate sensor indicated rate from an adaptive rate sensor.

17. The pacing rate limiter of claim 16, wherein the pacing rate limiter further comprises a selector for selecting a maximum pacing rate as the minimum of the adaptive-rate sensor indicated rate and the ERT rate.

18. The pacing rate limiter of claim 16, wherein the adaptive rate sensor is selected from the group consisting of activity sensor, minute ventilation sensor, QT interval sensor, and intrinsic atrial rate.

19. A cardiac rhythm management system for a heart, the system comprising:

- a pacemaker module coupled to the heart so as to provide a paced heart rate;
- a pacing rate limiter module coupled to the pacemaker module;
- a paced ventricular evoked response sensor module coupled to the pacing rate limiter module, wherein the paced ventricular evoked response sensor module is adapted to detect a paced ventricular evoked response;
- a T sensor module coupled to the pacing rate limiter module, wherein the T sensor module is adapted to detect a T-wave; and
- an adaptive rate sensor module coupled to the pacing rate limiter module, wherein the adaptive rate sensor module communicates an adaptive-rate sensor indicated rate to the pacing rate limiter module;

wherein the pacing rate limiter module calculates an ERT rate based on the detected paced ventricular evoked response and the T-wave, and wherein the pacing rate limiter module further communicates the minimum of the ERT rate and the adaptive-rate sensor indicated rate to the pacemaker module.

20. A pacing rate limiter for limiting a paced heart rate, the pacing rate limiter comprising:

- means for detecting a paced ventricular evoked response;
- means for detecting a T-wave; and
- means for calculating a maximum pacing rate based on the paced ventricular evoked response and the T-wave.

21. The pacing rate limiter of claim 20, wherein the pacing rate limiter further comprises means for limiting the paced heart rate based on the maximum pacing rate.

22. A method for calculating a maximum pacing rate, the method comprising:
 - measuring a cardiac cycle, wherein the cardiac cycle comprises a ventricular relaxation portion and a ventricular contraction portion; and
 - limiting the maximum pacing rate to cause the ventricular contraction portion to be a percentage of the cardiac cycle.
23. The method of claim 22, wherein the limiting step further comprises defining the percentage to be less than 50 percent.
24. The method of claim 22, wherein the limiting step further comprises defining the percentage to be less than 60 percent.
25. The method of claim 22, wherein the limiting step further comprises defining the percentage to be greater than 30 percent.
26. The method of claim 22, wherein the measuring step further comprises calculating the ventricular contraction portion using the ERT interval.